

CHAPTER IV

RESEARCH FINDINGS AND ANALYSIS

A. Description of Research Results

In findings of the research, it was described that there were different results between experimental group which was taught by using times of day game and control group which was taught by conventional technique on writing recount text. The research was conducted in SMK Bina Utama Kendal that located on Jl. Kyai Tulus Jetis Kendal at eleventh grade in the academic year of 2015/2016.

The research started on 3rd November 2015 by asking permission to the school principal and choosing the sample used cluster random sampling. From 14 classes of eleventh grade, researcher got class XI TKJ 1 which consisted of 30 students as experimental group and class XI TKJ 2 which consisted of 26 students as control group. The number of students was gained from documentation of the school.

Pre-test was given in experimental group on 12nd November 2015 and in control group on 13rd November 2015. Before it, researcher prepared lesson plan and material of learning activity. Pre-test was conducted to know that both groups were normal and homogen or not.

After giving pre-test, treatment was conducted for experimental group on 12nd and 19th November 2015 by using times of day game as the technique of teaching learning. Conventional teaching was conducted in control group on 13rd and 20th November 2015. In control group, students were taught material without variation or special treatment.

Then, post test was given in the form which they have to write about recount text of their last activities with time allotment for writing was 30 minutes. Post test for experimental group was conducted on 19th November 2015 whereas post test for control group was conducted on 20th November 2015.

After that, the data was collected. Worksheets that had been given to students were scored. The score was obtained from each item of element of writing. The data were analyzed to prove the truth of hypothesis that had been planned.

From the result, it could be concluded that there were a different results between experiment group and control group by hypothesis test which showed the value of t_{count} was higher than t_{table} . It could be seen on the value of t_{count} was 2.138 while the critical value of t_{table} on $t_{(0.05)(54)}$ was 2.001, so the hypothesis was accepted. It meant that there was a different result between students' achievements in writing recount text that had been taught by using times of day game and conventional teaching.

B. Data Analysis

1. The Data Analysis of Pre-test Score

Table 4.1
Pre-test Score of Eleventh Grade

No.	XI TKJ 1 (Experiment)		XI TKJ 2 (Control)	
	Code	Score	Code	Score
1	E-1	60	C-1	65
2	E-2	82	C-2	76
3	E-3	65	C-3	57
4	E-4	66	C-4	71
5	E-5	68	C-5	64
6	E-6	71	C-6	61
7	E-7	77	C-7	73
8	E-8	76	C-8	81
9	E-9	78	C-9	65
10	E-10	69	C-10	64
11	E-11	59	C-11	70
12	E-12	66	C-12	66
13	E-13	59	C-13	51
14	E-14	73	C-14	77
15	E-15	78	C-15	59
16	E-16	63	C-16	88
17	E-17	58	C-17	71
18	E-18	72	C-18	69
19	E-19	72	C-19	61
20	E-20	64	C-20	69
21	E-21	58	C-21	76
22	E-22	77	C-22	86
23	E-23	83	C-23	49
24	E-24	63	C-24	54

25	E-25	70	C-25	65
26	E-26	68	C-26	67
27	E-27	69		
28	E-28	68		
29	E-29	61		
30	E-30	66		
Σ		2059		1755
N		30		26
\bar{x}		68,63333		67,5
Varians (S^2)		50,65402		94,18
S		7,117164		9,704638

a. Normality of the Experimental Group Pre-test

Normality test was used to know whether the data obtained was normally distributed or not. Based on the table above, the normality test:

Hypothesis:

Ho : the distribution list was normal

Ha : the distribution list was not normal

Ho accepted if $\chi_{\text{count}} < \chi_{\text{table}}$ with $\alpha = 5\%$, dk = k-3

The formula was used:

$$\chi^2 = \sum_{i=1}^k \frac{(O_i - E_i)^2}{E_i}$$

The computation of normality test:

Maximum score = 83

Minimum score = 58

Range (R) = 83 – 58 = 25

$$\text{Number of class (K)} = 1 + 3.3 \log 30 = 5.87 = 6$$

$$\text{Length of class} = 25 : 6 = 4.166 = 5$$

Table 4.2
The Frequency Distribution of the Experimental Group Pre-test

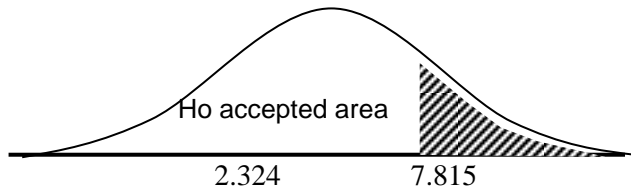
Class	f_i	x_i	x_i^2	$f_i x_i$	$f_i x_i^2$
58 – 62	6	60	3600	360	21600
63 – 67	7	65	4225	455	29575
68 – 72	9	70	4900	630	44100
73 – 77	4	75	5625	300	22500
78 – 82	3	80	6400	240	19200
83 – 87	1	85	7225	85	7225
Sum	30			2070	144200

Table 4.3
The Frequency Observation of the Experimental Group Pre-test

Class	B	Z_i	$P(Z_i)$	Wide Area	E_i	O_i	$\frac{(O_i - E_i)^2}{E_i}$
	57,5	-1,6732	-0,4529				
58 - 62				0,1250	3,75009881	6	1,3498459
	62,5	-0,9457	-0,3278				
63 - 67				0,2415	7,24411124	7	0,008226
	67,5	-0,2182	-0,0864				
68 - 72				0,2811	8,4323882	9	0,0382078
	72,5	0,5092	0,1947				
73 - 77				0,1972	5,91587049	4	0,6204598
	77,5	1,2367	0,3919				
78 - 82				0,0833	2,50037624	3	0,0998345
	82,5	1,9641	0,4752				
83 - 87				0,0212	0,63604212	1	0,208265
	87,5	2,6916	0,49644				
					$x^2 =$		2,3248391

$$x_{\text{count}} = 2.3248391$$

For $\alpha = 5\%$, $dk = 6 - 3 = 3$, $x_{\text{table}} = 7.815$



With $\alpha = 5\%$ and $dk = 6 - 3 = 3$, from the

chi-square table obtained $x_{\text{table}} = 7.815$. Because

x_{count} was lower than x_{table} ($2.3248391 < 7.815$) so,

the distribution list was normal.

b. The Normality of the Control Group Pre-test

Hypothesis:

H_0 : the distribution list was normal

H_a : the distribution list was not normal

H_0 accepted if $x_{\text{count}} < x_{\text{table}}$ with $\alpha = 5\%$, $dk = k-3$

The formula was used:

$$x^2 = \sum_{i=1}^k \frac{(O_i - E_i)^2}{E_i}$$

The computation of normality test:

Maximum score = 88

Minimum score = 49

Range (R) = $83 - 58 = 39$

Number of class (K) = $1 + 3.3 \log 26 = 5.67 = 6$

Length of class = $39 : 6 = 6.5 = 7$

Table 4.4
The Frequency Distribution of the Control Group Pre-test

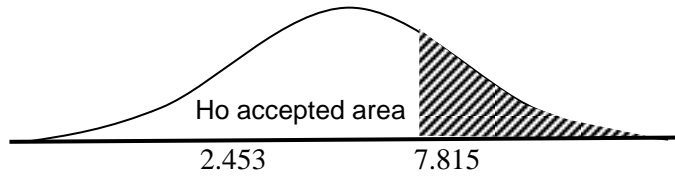
Class	f_i	x_i	x_i^2	$f_i x_i$	$f_i x_i^2$
49 – 55	3	52	2704	156	8112
56 – 62	4	59	3481	236	13924
63 – 69	9	66	4356	594	39204
70 – 76	6	73	5329	438	31974
77 – 83	2	80	6400	160	12800
84 – 90	2	87	7569	174	15138
Sum	26			1758	121152

Table 4.5
The Frequency Observation of the Control Group Pre-test

Class	B	Z_i	$P(Z_i)$	Wide Area	E_i	O_i	$\frac{(O_i - E_i)^2}{E_i}$
	48,5	-1,99982	-0,47724				
49 – 55				0,07973	2,072982	3	0,414553
	55,5	-1,26749	-0,39751				
56 – 62				0,193779	5,038246	4	0,213954
	62,5	-0,53516	-0,20373				
63 – 69				0,281882	7,328934	9	0,381019
	69,5	0,197165	0,07815				
70 – 76				0,245532	6,383839	6	0,023079
	76,5	0,929493	0,32368				
77 – 83				0,128043	3,329105	2	0,530629
	83,5	1,66182	0,45173				
84 – 90				0,039945	1,038567	2	0,890027
	90,5	2,394148	0,49167				
					$\chi^2 =$		2,453262

$$\chi_{\text{count}} = 2.453262$$

$$\text{For } \alpha = 5\%, dk = 6 - 3 = 3, \chi_{\text{table}} = 7.815$$



With $\alpha = 5\%$ and $dk = 6 - 3 = 3$, from the chi-square table obtained $x_{table} = 7.815$. Because x_{count} was lower than x_{table} ($2.453262 < 7.815$) so, the distribution list was normal.

c. Homogeneity Test

Homogeneity test was used to know whether experimental class and control class, that were taken from population that has relatively same variant or not.

Hypothesis:

$$H_0 : \sigma_1^2 = \sigma_2^2$$

$$H_a : \sigma_1^2 \neq \sigma_2^2$$

H_0 is accepted if $F \leq F_{(1-a)(nb-1):(nk-1)}$

$$\text{Calculation formula: } F = \frac{Vb}{Vk}$$

Table 4.6
Result of Pre-test

Variation Source	XI TKJ 1 (Experiment)	XI TKJ 2 (Control)
Σ	2059	1755
N	30	26
\bar{x}	68,63333	67,5
Varians (S^2)	50,65402	94,18
S	7,117164	9,704638

According to the formula above, it is obtained

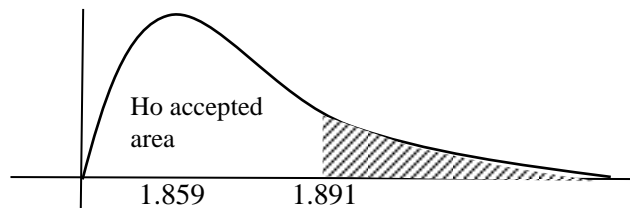
$$\text{that } F = \frac{94.18}{50.65402} = 1.85927$$

For $\alpha = 5\%$ with:

$$dk1 = n - 1 = 26 - 1 = 25$$

$$dk2 = n - 1 = 30 - 1 = 29$$

$$F_{(0.05)(25:29)} = 1.891$$



With $\alpha = 5\%$ and $dk = 25:29$, obtained $F_{\text{table}} = 1.891$. Because F_{count} was lower than F_{table} ($1.859 < 1.891$) so, H_0 was accepted and both groups have same variant or homogeneous.

d. Average Test

In this research, because $\sigma_1^2 = \sigma_2^2$ (both groups have same variant), the t-test formula was:

$$H_0 : \mu_1 = \mu_2$$

$$H_a : \mu_1 \neq \mu_2$$

μ_1 : average data of experiment class

μ_2 : average data of control class

H_0 is accepted if $-\text{t}_{\text{table}} < \text{t}_{\text{count}} < \text{t}_{\text{table}}$

$$t = \frac{\bar{x}_1 - \bar{x}_2}{S \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

$$S = \sqrt{\frac{(n_1 - 1)S_1^2 + (n_2 - 1)S_2^2}{n_1 + n_2 - 2}}$$

According to the formula above, it was obtained that:

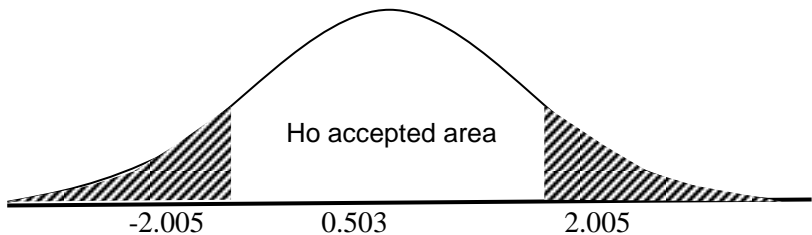
$$S = \sqrt{\frac{(30 - 1) 50.6540 + (26 - 1) 94.18}{30 + 26 - 2}}$$

$$S = 8.4146$$

$$t = \frac{68.63 - 67.50}{8.4146 \sqrt{\frac{1}{30} + \frac{1}{26}}}$$

$$t = 0.503$$

For $\alpha = 5\%$ and $dk = 30 + 26 - 2 = 54$, $t_{(0.05)(54)} = 2.005$



With $\alpha = 5\%$ and $dk = 30 + 26 = 54$, obtained $t_{\text{table}} = 2.005$. Because t_{count} was lower than t_{table} ($0.503 < 2.005$) so, H_0 was accepted and there was no difference of the pre-test average from both groups.

2. The Data Analysis of Post Test Score

Table 4.7
Post Test Score of Eleventh Grade

No.	XI TKJ 1 (Experiment)		XI TKJ 2 (Control)	
	Code	Score	Code	Score
1	E-1	86	C-1	75
2	E-2	83	C-2	52
3	E-3	76	C-3	65
4	E-4	64	C-4	55
5	E-5	60	C-5	66
6	E-6	60	C-6	63
7	E-7	61	C-7	53
8	E-8	70	C-8	63
9	E-9	69	C-9	72
10	E-10	81	C-10	62
11	E-11	67	C-11	80
12	E-12	67	C-12	63
13	E-13	70	C-13	48
14	E-14	66	C-14	81
15	E-15	73	C-15	67
16	E-16	74	C-16	81
17	E-17	59	C-17	56
18	E-18	71	C-18	61
19	E-19	69	C-19	68
20	E-20	68	C-20	73
21	E-21	69	C-21	89
22	E-22	78	C-22	65
23	E-23	73	C-23	66
24	E-24	66	C-24	64
25	E-25	83	C-25	61

26	E-26	77	C-26	69
27	E-27	85		
28	E-28	64		
29	E-29	71		
30	E-30	70		
Σ		2130		1718
N		30		26
\bar{x}		71		66,0769231
Varians (S^2)		56,0689655		94,5538462
S		7,48792131		9,7238802

a. The Normality of the Experimental Group Post Test

Hypothesis:

Ho : the distribution list was normal

Ha : the distribution list was not normal

Ho accepted if $\chi_{\text{count}} < \chi_{\text{table}}$ with $\alpha = 5\%$, dk = k-3

The formula was used:

$$\chi^2 = \sum_{i=1}^k \frac{(O_i - E_i)^2}{E_i}$$

The computation of normality test:

Maximum score = 86

Minimum score = 59

Range (R) = 86 - 59 = 27

Number of class (K) = 1 + 3.3log30 = 5.87 = 6

Length of class = 27 : 6 = 4.5 = 5

Table 4.8
The Frequency Distribution of the Experimental Group Post test

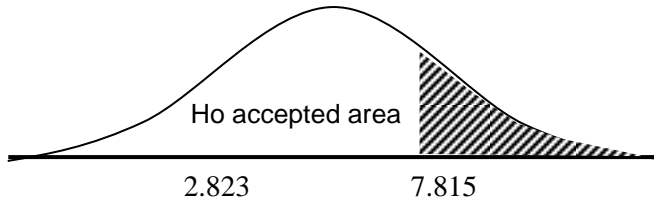
Class	f_i	x_i	x_i^2	$f_i x_i$	$f_i x_i^2$
59 – 63	4	61	3721	244	14884
64 – 68	7	66	4356	462	30492
69 – 73	10	71	5041	710	50410
74 – 78	4	76	5776	304	23104
79 – 83	3	81	6561	243	19683
84 – 88	2	86	7396	172	14792
Sum	30			2135	153365

Table 4.9
The Frequency Observation of the Experimental Group Post test

Class	B	Z_i	$P(Z_i)$	Wide Area	E_i	O_i	$\frac{(O_i - E_i)^2}{E_i}$
	58,5	-1,8075	-0,4647				
59 – 63				0,10163	3,04895	4	0,29665
	63,5	-1,094	-0,363				
64 – 68				0,2148	6,4441	7	0,04795
	68,5	-0,3805	-0,1482				
69 – 73				0,27864	8,35927	10	0,32204
	73,5	0,33296	0,13042				
74 – 78				0,22191	6,65716	4	1,06059
	78,5	1,04645	0,35232				
79 – 83				0,10847	3,25402	3	0,01983
	83,5	1,75994	0,46079				
84 – 88				0,03252	0,97553	2	1,07588
	88,5	2,47344	0,49331				
					$\chi^2 =$		2,82294

$$\chi_{\text{count}} = 2.82294$$

$$\text{For } \alpha = 5\%, dk = 6 - 3 = 3, \chi_{\text{table}} = 7.815$$



With $\alpha = 5\%$ and $dk = 6 - 3 = 3$, from the chi-square table obtained $x_{table} = 7.815$. because x_{count} was lower than x_{table} ($2.82294 < 7.815$) so, the distribution list was normal.

b. The Normality of the Control Group Post Test

Hypothesis:

Ho : the distribution list was normal

Ha : the distribution list was not normal

Ho accepted if $x_{count} < x_{table}$ with $\alpha = 5\%$, $dk = k-3$

The formula was used:

$$x^2 = \sum_{i=1}^k \frac{(O_i - E_i)^2}{E_i}$$

The computation of normality test:

Maximum score = 89

Minimum score = 48

Range (R) = 89 - 48 = 41

Number of class (K) = $1 + 3.3 \log 26 = 5.67 = 6$

Length of class = $41 : 6 = 6.83 = 7$

Table 4.10
The Frequency Distribution of the Control Group Post test

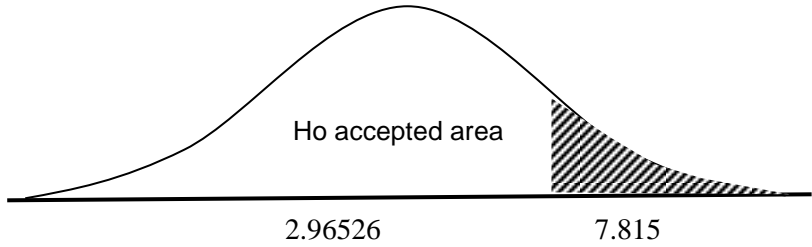
Class	f_i	x_i	x_i^2	$f_i x_i$	$f_i x_i^2$
48 – 54	3	51	2601	153	7803
55 – 61	4	58	3364	232	13456
62 – 68	11	65	4225	715	46475
69 – 75	4	72	5184	288	20736
76 – 82	3	79	6241	237	18723
83 – 89	1	86	7396	86	7396
Sum	26			1711	114589

Table 4.11
The Frequency Observation of the Control Group Post test

Class	B	Z_i	$P(Z_i)$	Wide Area	E_i	O_i	$\frac{(O_i - E_i)^2}{E_i}$
	47,5	-2,05095	-0,47986				
48 – 54				0,082484	2,144588	3	0,341198
	54,5	-1,26676	-0,39738				
55 – 61				0,212078	5,514034	4	0,415721
	61,5	-0,48258	-0,1853				
62 – 68				0,303827	7,899501	11	1,216924
	68,5	0,30161	0,118525				
69 – 75				0,24269	6,309942	4	0,845623
	75,5	1,085796	0,361215				
76 – 82				0,108041	2,809078	3	0,012976
	82,5	1,869982	0,469257				
83 – 89				0,026768	0,695966	1	0,132818
	89,5	2,654169	0,496025				
					$\chi^2 =$		2,96526

$$\chi_{\text{count}} = 2.96526$$

For $\alpha = 5\%$, $dk = 6 - 3 = 3$, $\chi_{\text{table}} = 7.815$



With $\alpha = 5\%$ and $dk = 6 - 3 = 3$, from the chi-square table obtained $x_{table} = 7.815$. because x_{count} was lower than x_{table} ($2.96526 < 7.815$) so, the distribution list was normal.

c. Homogeneity Test

Hypothesis:

$$H_0 : \sigma_1^2 = \sigma_2^2$$

$$H_a : \sigma_1^2 \neq \sigma_2^2$$

H_0 is accepted if $F \leq F_{(1-\alpha)(nb-1):(nk-1)}$

$$\text{Calculation formula: } F = \frac{vb}{Vk}$$

Table 4.12
Result of Post test

Variation Source	XI TKJ 1 (Experiment)	XI TKJ 2 (Control)
Σ	2130	1718
N	30	26
\bar{x}	71	66,0769231
Varians (S^2)	56,0689655	94,55384615
S	7,48792131	9,723880201

According to the formula above, it is obtained

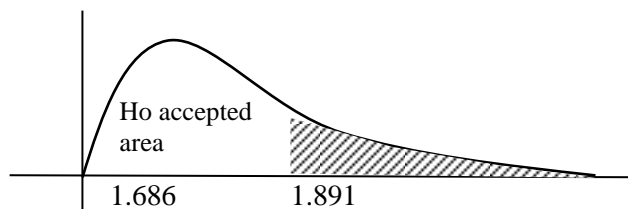
$$\text{that } F = \frac{94.55384615}{56.0689655} = 1.6863847$$

For $\alpha = 5\%$ with:

$$dk1 = n - 1 = 26 - 1 = 25$$

$$dk2 = n - 1 = 30 - 1 = 29$$

$$F_{(0.05)(25;29)} = 1.891$$



Since $F_{\text{count}} < F_{\text{table}}$, the experimental group (XI TKJ 1) and control group (XI TKJ 2) have the same variance. With $\alpha = 5\%$ and $dk = 25:29$, obtained $F_{\text{table}} = 1.891$. because F_{count} was lower than F_{table} ($1.686 < 1.891$). So, H_0 was accepted and both groups had same variant or homogeneous.

d. Hypothesis Test

In this research, because $\sigma_1^2 = \sigma_2^2$ (both groups had same variant), the t-test formula was:

$$H_0: \mu_1 = \mu_2$$

$$H_a: \mu_1 \neq \mu_2$$

μ_1 : average data of experiment class

μ_2 : average data of control class

H_0 is accepted if $-t_{\text{table}} < t_{\text{count}} < t_{\text{table}}$

$$t = \frac{\bar{x}_1 - \bar{x}_2}{S \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

$$S = \sqrt{\frac{(n_1 - 1)S_1^2 + (n_2 - 1)S_2^2}{n_1 + n_2 - 2}}$$

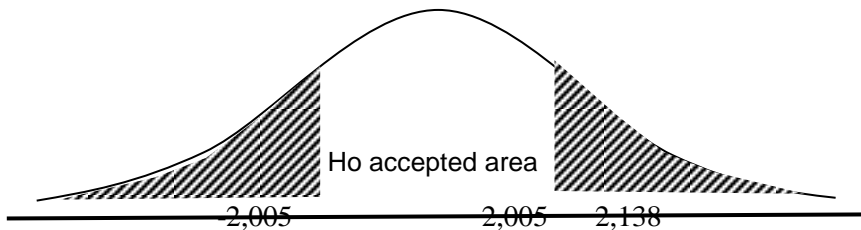
According to the formula above, it was obtained that:

$$S = \sqrt{\frac{(30 - 1) 56.0690 + (26 - 1) 94.55385}{30 + 26 - 2}}$$

$$S = 8.5957$$

$$t = \frac{71.00 - 66.08}{8.5957 \sqrt{\frac{1}{30} + \frac{1}{26}}}$$

$$t = 2.1375$$



For $\alpha = 5\%$ and $dk = 30 + 26 - 2 = 54$, $t_{(0.05)(54)} = 2.005$

With $\alpha = 5\%$ and $dk = 30 + 26 = 54$, obtained $t_{\text{table}} = 2.005$. Because t_{count} was higher than t_{table} ($2.138 > 2.005$) so, H_0 was rejected and there was a difference of the post test average from both groups.

C. Discussion of the Research Findings

1. The students' achievement of pre-test

Based on the result of pre-test, it can be known that both of experiment group and control group are normal distribution and homogeneous. The normality test of experiment group with chi-square is $\chi_{\text{count}} (2.3248391) < \chi_{\text{table}} (7.815)$ while control group is $\chi_{\text{count}} (2.453262) < \chi_{\text{table}} (7.815)$. The homogeneity test of pre-test shows that F_{count} is lower than $F_{\text{table}} (1.859 < 1.891)$.

In addition, the result of calculation t-test of pre-test is obtained $t_{\text{count}} 0.503$ and $t_{\text{table}} 2.005$. It shows that $t_{\text{count}} < t_{\text{table}} 2.005 (0.503 < 2.005)$. It means that there is no different average both experiment group and control group before the treatment.

2. The students' achievement of post test

The normality test of experiment group with chi-square is $\chi_{\text{count}} (2.82294) < \chi_{\text{table}} (7.815)$ while control group is $\chi_{\text{count}} (2.96526) < \chi_{\text{table}} (7.815)$. The homogeneity test of pre-test shows that F_{count} is lower than $F_{\text{table}} (1.686 < 1.891)$. it means that both experiment group and control group of post test is normal distribution and homogeneous.

Based on the result of calculation t-test shows that t_{count} is higher than $t_{\text{table}} (2.138 > 2.005)$. It means that there is a difference of the post test average between experiment

group which has been taught by using times of day game and control group which has been taught without times of day game.

From the result above, it can be concluded that times of day game is effective to use in teaching writing of recount text.

D. Limitation of the Research

The researcher realized that in this research was still far from perfect. There were constraints and obstacles faced during the research process. The research was limited in teaching writing of recount text in the first semester of eleventh grade students of SMK Bina Utama Kendal in the academic year of 2015/2016. It is still possible that the different result will be gained when the same researches in other school or other period.

Considering all those limitations, it is a need to do further research about teaching English using the same or different medium, to obtain more optimal result.
